

REMARKS

Claims 1, 3-7 and 9-20 are pending in the present application. Claim 1 is in independent form. Claim 1 is amended. Claim 2 is cancelled. No new matter has been added. In view of the above amendments and the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

Initially, Applicants appreciate the indication that the references submitted in the Information Disclosure Statement filed on September 3, 2009 have been considered.

I. **CLAIM AMENDMENTS**

By the present Amendment, claim 1 is amended. The amendment to claim 1 is supported, at least, by original claim 2. Thus, Applicants submit that the claim amendment does not introduce new matter.

II. **EXAMPLE EMBODIMENTS**

According to example embodiments, the method of claim 1 brings about a remarkable effect. In particular, example embodiments teach that “[a]ccording to the foregoing producing method, a Fe concentration of high silicate glass to be obtained can be much further lowered, so that a UV transmittance can be further increased. Moreover, according to the foregoing producing method, since the same method as the conventional Vycor method is applied, high silicate glass which has a high UV

transmittance can be mass-produced at low cost." Specification, pg. 5, l. 27
- pg. 6, line 1.

III. CITED ART REJECTIONS

(A) *Claims 1-4, 9 and 17-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakagawa et al., Japanese Publication No. JP 57-188432 (hereinafter "JP '432") in view of Aulich et al., U.S. Patent No. 4,294,811. Applicants respectfully traverse the rejection for the reasons stated below.*

Amended independent claim 1 is directed to a method for producing high silicate glass, the method including (*inter alia*) "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper," "wherein the borosilicate glass includes 0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper." Applicants submit that the combination of JP '432 and Aulich fails to explicitly teach, or otherwise suggest, the above features recited in amended independent claim 1.

First, the rejection states that "Nakagawa '432 does not expressly disclose the borosilicate glass impurities manganese, cerium, chromium, etc. however Aulich teaches it is commonly known in the art that copper, cobalt, chromium, cerium, and manganese are commonly known contaminants of **borosilicate glass**..." Action, p. 3 (emphasis added).

However, Aulich teaches that “[t]he invention provides a process for producing highly purified silicon from quartz sand so that it can be used directly in [the] fabrication of semiconductor components. In accordance with the principles of the invention, ordinary quartz sand is uniformly admixed with suitable glass-forming materials and transformed, via melting, into glass.” Aulich, col. 2, ll. 56-63 (emphasis added). Thus, Aulich relates to quartz glass, not borosilicate glass.

Furthermore, absent Applicants’ own disclosure, there is no motivation to include the impurities in the quartz glass taught by Aulich in the borate glass of JP ‘432.

Secondly, as previously discussed in Applicants’ Amendment June 18, 2009, JP ‘432 teaches that “[a] borate glass composed mainly of SiO_2 , B_2O_3 and $\text{Na}_2\text{O}\dots$ ” is used. JP ‘432, Machine Translation, p. 3 (emphasis added). Thus, there is no teaching, or suggestion, in JP ‘432 that the borate glass contains “any one element of manganese, cerium, chromium, cobalt, and copper” as recited independent claim 1.

Furthermore, acknowledging the deficiencies of JP ‘432, the rejection states that “...Aulich teaches it is commonly known in the art that copper, cobalt, chromium, cerium, and manganese are commonly known contaminants of borosilicate glass of which weight percentages will are commonly in the range of 0.1 wt % to 2.0 wt % (Column 3, lines 56-61).” Action, p. 3.

However, column 3, lines 56-61 of Aulich states that “[i]n order to obtain effective phase separation, the glass composition should be so-

selected that two phases of varying composition are not present in the glass matrix in the form of 'isolated islands' and are instead connected with one another through a channel system or network." Thus, the portion of Aulich relied upon by the Examiner does not teach, or suggest, that copper, cobalt, chromium, cerium, and manganese are commonly known contaminants of borosilicate glass, as asserted by the Examiner. Furthermore, the portion of Aulich relied upon by the Examiner does not teach, or suggest, "an oxide of the element of manganese, cerium, chromium, cobalt, and copper" (as recited in claim 1).

Thus, none of the cited references discloses, or suggests, "the borosilicate glass includes 0.1 wt% to 2.0 wt% of an oxide of the element of manganese, cerium, chromium, cobalt, and copper" as recited in amended independent claim 1.

In addition, the effects (discussed above) of the instant application cannot be expected from the cited references.

For at least these reasons, Applicants submit that JP '432 in view of Aulich fails to explicitly teach, or otherwise suggest, a method for producing high silicate glass including "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper," "wherein the borosilicate glass includes 0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper" as recited in amended independent claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to independent claim 1, and claims 3, 4, 9 and 17-20 at least by virtue of their dependency on independent claim 1.

(B) Claims 5, 10, 11 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP '432 in view of Aulich and in further view of Elmer, U.S. Patent No. 3,113,855.¹ Applicants respectfully traverse the rejection for the reasons stated below.

Elmer, directed to a method of increasing the annealing point of high silica glass, fails to teach, or suggest, that borosilicate glass contains “0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper” as recited independent claim 1. Thus, Elmer fails to cure the above-noted deficiencies of JP '432 and Aulich with respect to independent claim 1.

Claims 5, 10, 11 and 12, by virtue of their dependency on independent claim 1, are patentable over the combination of JP '432, Aulich and Elmer.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 5, 10, 11 and 12.

¹ The Examiner refers to U.S. Patent No. 3,113,855 as “Corning Glass Works.” However, the '855 Patent belongs to Elmer and is assigned to Corning Glass Works. Thus, Applicants refer to the reference as “Elmer” in order to avoid any ambiguity in the arguments made of the record.

(C) *Claims 17-20 stand rejected under 35 U.S.C. §103(a) as unpatentable over JP '432 in view of Aulich or Nakagawa et al., Japanese Patent Publication No. 57-205337 (hereinafter "JP '337"). Applicants respectfully traverse the rejection for the reasons stated below.*

JP '337 teaches that "...a borate glass composed mainly of SiO_2 , B_2O_3 and Na_2O ..." is used. JP '337, Machine Translation, p. 3. There is no teaching, or suggestion, in JP '337 that the borate glass contains "0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1. Thus, JP '337 fails to cure the above-noted deficiencies of JP '432 and Aulich with respect to independent claim 1.

Claims 17-20, by virtue of their dependency on independent claim 1, are patentable over the combination of JP '432, Aulich and JP '337.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 17-20.

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CONCLUSION

Accordingly, in view of the above, reconsideration of the rejections and allowance of each of claims 1, 3-7 and 9-20 in connection with the present application is earnestly solicited.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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